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Bruce D. Melick

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EXAMINER

SEDIGHIAN, REZA

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/812,545

Applicant(s)

MELICK ET AL.

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1,3,4,21-23,25,38-42,45-47,49,50 and 58-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,21-23,25,38-42,45-47,49,50 and 58-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4/24/06. 6) ☐ Other: \_\_\_\_\_

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1. This communication is responsive to applicant's 4/24/06 amendments and remarks. The amendments have been entered. Claims 1, 3-4, 21-23, 25, 38-42, 45-47, 49-50, and 58-66 are now pending.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 21-23, 25, 38-42, 46-47, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Rybicki et al. (US Patent Application Publication No: 2001/0055353 A1).

Regarding claims 1, 21, 38, and 47, Rybicki teaches a method of transmitting data (page 1, paragraph 0001 and fig. 1), comprising: receiving digital bits of data (data receiver 14, and set of bits 24 in fig. 1) from a memory unit (data receiver 14, figs. 1, 15 and page 9, paragraph 0089); transforming a plurality of the bits of data (page 3, paragraph 0049, the bits of data shown in figs. 4, 9) into a single transmission pulse (page 4, paragraph 0059, note that the set of bits of data transmitted as a single pulse, shown in figs. 4, 9), the single transmission pulse having a pulse characteristic selected from a set of three or more predetermined pulse characteristics (page 3, paragraph 0049, page 9, paragraph 0087 and figs. 4, 9, 13), one of which is corresponding to the plurality of bits of data (page 8, paragraph 0076, page 9, paragraph 0087); and transmitting the single transmission pulse over a guided medium (page 3, paragraph 0049) to a receiver (receiver 38, fig. 1) without using a carrier signal to transmit the single transmission pulse (the

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wireless path, or the IR path in fig. 1); wherein one set of the pulse characteristics corresponds to the pulse duration (page 8, paragraph 0076) and wherein length of the pulse duration corresponds to numbers 0 through 9 (page 9, paragraph 0087, note that the length of the pulses corresponds to the bits of data, or to the numbers 0 through 9, as it is shown in figs. 4, 9). As to claim 21, Rybicki teaches receiving at least two digital bits of data (for example, the bits of data shown in figs. 4, 9) and transforming the at least two bits of data into a single transmission pulse (page 4, paragraph 0059, note that each set of bits represented by a single transmission pulse, as it is shown in figs 4, 9) having a pulse duration selected from a set of three or more predetermined pulse duration (page 4, paragraph 0059 and page 9 paragraph 0087, note that pulse durations are different for different sets of bits, for example, different pulse durations are shown for different sets of bits, such as the set 0011 and 0100 in fig. 4), one of which corresponds to the bits of data, and transmitting the single pulse without using a carrier to transmit the transmission pulse (page 3, paragraph 0049 and 32, fig. 1). As to claim 47, Rybicki teaches the single transmission pulse having a pulse position selected from a set of three or more predetermined pulse positions, one of which corresponds to the bits of data (page 3, paragraph 0049 and page 8, paragraph 0076, note that pulse positions are different for different set of bits, as it is shown in figs. 4 and 9).

Regarding claim 4, Rybicki further teaches receiving (46, fig. 1) the single transmission pulse from the transmission medium (path 32, fig. 1) at the receiver (38, fig. 1), and transforming the single transmission pulse into the plurality of a digital bit of data corresponding to the characteristics of the transmission pulse (page 3, paragraph 0050).

Regarding claims 22 and 25, Rybicki teaches the transmission pulse is a pulse of light (20, fig. 1) that is transmitted over a fiber optic cable (page 3, paragraph 0049).

Regarding claim 23, Rybicki teaches the transmission pulse is an electronic pulse (pulses 26, fig. 1) that is transmitted over a guided media (the guided medium between modulation circuit 16 and amplifier 18, fig. 1).

Regarding claim 39, Rybicki teaches the transmission pulse characteristics corresponding to the bits of data is the transmission pulses position in time (page 8, paragraph 0076).

Regarding claim 40, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the duration between transmission pulses (page 8, paragraph 0074).

Regarding claim 41, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the amplitude of the transmission pulse (page 3, paragraph 0049).

Regarding claim 42, Rybicki teaches the transmission pulse characteristic corresponding to the bits of data is the duration of the transmission pulses (page 9, paragraph 0087).

Regarding claims 46 and 50, Rybicki further teaches receiving (46, fig. 1) the single transmission pulse from the transmission medium (path 32, fig. 1), and transforming the single transmission pulse into a plurality of digital bits of data corresponding to the specific characteristics of the transmission pulse (page 3, paragraph 0050).

4. Claims 58-64 are rejected under 35 U.S.C. 102(e) as being anticipated by McCorkle et al. (US Patent No: 6,700,939).

Regarding claims 58 and 62, McCorkle teaches a method of transmitting data (col. 2, lines 51-65), comprising: representing a symbol (col. 2, lines 54-55) comprising at least two bits of data (col. 9, lines 59-62, col. 10, lines 53-56) by varying a pulse characteristic of a single time

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modulated ultrawideband radio-frequency pulse (col. 5, lines 30-45, note that the signal pulse transmitting in line 108 is a single time modulated ultrawideband radio-frequency pulse), wherein the pulse characteristic is selected to be one of a set of at least three pulse characteristic based on the value of the at least two bits of data (col. 5, lines 40-44, col. 9, lines 37-40), transmitting the time modulated ultrawideband pulse (col. 9, lines 59-62, col. 10, lines 53-59) over a guided medium (121, 108, 110, 123, 125, fig. 1) to a receiver (col. 3, lines 22-25, col. 18, lines 40-55 and fig. 2A). As to claim 62, McCorkle teaches a method of data transmission that is comprised of representing a symbol (col. 2, lines 54-55) comprising a plurality of bits of data (col. 9, lines 60-61, col. 10, line 54) using a pulse characteristic of a single time modulated ultrawideband radio-frequency pulse (col. 5, lines 30-45), transmitting the time modulated ultrawideband radio-frequency pulse (col. 9, lines 59-62, col. 10, lines 53-59).

Regarding claims 59 and 64, McCorkle teaches each of the pulse characteristic within the set is a pulse duration (col. 5, lines 42-44).

Regarding claim 60, McCorkle teaches each of the pulse characteristic within the set is a pulse position (col. 4, lines 52-55, col. 9, lines 55-57).

Regarding claim 61, McCorkle teaches each of the pulse characteristic within the set is a pulse spacing (col. 9, lines 37-40).

Regarding claim 63, McCorkle teaches transmitting the time modulated ultrawideband pulse (col. 9, lines 59-62, col. 10, lines 53-59) over an electrically conductive guided medium (121, 108, 110, 123, 125, fig. 1) to a receiver (col. 3, lines 22-25, col. 18, lines 40-55 and fig. 2A).

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5. Claims 58-64 are rejected under 35 U.S.C. 102(e) as being anticipated by Fullerton et al. (US Patent No: 7,027,425 B1).

Regarding claims 58 and 62, Fullerton discloses a method of transmitting data (col. 1, lines 8-11), comprising: representing a symbol comprising at least two bits of data (col. 5, lines 36-40) by varying a pulse characteristic of a single (note that the system can deliver one or more data bits per pulse) time modulated ultrawideband radio-frequency pulse (col. 3, lines 19-30), wherein the pulse characteristic is selected to be one of a set of at least three pulse characteristics (for example, the pulse width or the pulse position or the pulse amplitude, see fig. 2A) based on the value of the at least two bits of data (col. 4, lines 4-7), transmitting the time modulated ultrawideband pulse over a guided medium to a receiver (602, 622, 626, 624, fig. 6).

Regarding claims 59 and 64, Fullerton teaches each of the pulse characteristic within the set is a pulse duration (col. 5, lines 45-55 and fig. 2A).

Regarding claim 60, Fullerton teaches each of the pulse characteristic within the set is a pulse position (col. 3, line 65-66).

Regarding claim 61, Fullerton teaches each of the pulse characteristic within the set is a pulse spacing (col. 3, line 65-66).

Regarding claim 63, Fullerton teaches transmitting the time modulated ultrawideband pulse over an electrically conductive guided medium to a receiver (602, 622, 626, 624, fig. 6).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 30, 45, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rybicki et al. (US Patent Application Publication No: 2001/0055353 A1) in view of Atkin et al. (US Patent No: 6,289,303).

Regarding claims 3, 30, 45, 49, Rybicki differs from the claimed invention in that Rybicki does not specifically disclose the data is in the form of universal character encoding. However, it is well known to use universal character encoding standards for representing text or data. For example, Atkin discloses universal character encoding can be used to encode all the characters used for written languages (col. 4, lines 35-50). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a method of universal character encoding, as it is taught by Atkin, for the data transmission system of Rybicki to encode different characters or data.

8. Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. (US Patent No: 6,700,939) in view of Campana, Jr. (US Patent No: 6,198,783 B1).

Regarding claim 65, McCorkle differs from the claimed invention in that McCorkle does not disclose encoding the plurality of bits into a base 10 representation. Campana teaches a system for wireless serial transmission of encoded information (col. 21, lines 10-15 and 102, fig. 7), wherein a plurality of bits are encoded in a base 10 representation (col. 46, lines 4-7). Therefore, it would have been obvious to an artisan at the time of invention to incorporate a method of base 10 encoding, as disclosed by Campana, for the encoding in the data transmission system of McCorkle to encode high amounts of information.



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9. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. (US Patent No: 6,700,939) in view of Emelko (US Patent No: 5,903,231).

Regarding claim 66, McCorkle differs from the claimed invention in that McCorkle does not disclose encoding the plurality of bits into a number base greater than base 2. Emelko discloses a system for encoding base N data using a multi-level coding scheme (col. 3, lines 65-67, col. 4, lines 1-11), wherein a plurality of bits are encoded into a number base greater than base 2 (col. 4, lines 11-14). Therefore, it would have been obvious to an artisan at the time of invention to incorporate a method of base 2 encoding, as disclosed by Emelko, for the encoding in the data transmission system of McCorkle to achieve a high data transfer rate and to use bandwidth more efficiently.

10. Applicant's arguments filed 4/24/06 have been fully considered but they are not persuasive.

Remark states Rybicki does not disclose that multiple bits of data are represented by a single pulse. However, Rybicki clearly discloses the transmission (20, 32, fig. 1) of multiple bits of data (the set of bits of data, shown in figs 1, 4, 9) by a single pulse (page 4, paragraph 0059, lines 8-10, note that each set of bits represented by a single transmission pulse, as it is shown in figs 4, 9). Remark further states McCorkle does not disclose representing a symbol comprising multiple bits of data with a single pulse, and instead McCorkle uses a spread-spectrum approach to UWB communications. Claims 58 and 62, as it is amended, recites a method of transmitting data by representing a symbol comprising of at least two bits of data by varying a pulse characteristic of a single time modulated ultrawideband radio-frequency pulse. McCorkle also

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discloses such method of transmitting data, as it is shown in fig. 1, by representing a symbol (or pulses, or wavelets) that is transmitted on line 108 and that is comprised of at least two bits of data (see col. 9, lines 59-62, col. 10, lines 53-59, col. 14, lines 40-45) by varying a pulse characteristic of a single time modulated ultrawideband radio-frequency pulse (col. 2, lines 52-55, note that a single time modulated pulse is transmitted in line 108). Claims 58 and 62, as amended now, broadly states a symbol comprising of at least two bits of data by varying a pulse characteristic of a single time modulated ultrawideband radio-frequency pulse. Such limitations does not require the transmission of a plurality (or at least two) of the bits of data into a *single* transmission pulse. McCorkle teaches a single time modulated ultrawideband radio frequency pulse that is generated by a transmission unit 130 and that is propagating through line 108. Applicant's attention is directed that during the prosecution of a pending patent application the terms found in the claims should be given the broadest reasonable interpretation, *See in re Pearson*, 181 USPQ 641 (CCPA 1974).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**M. R. SEDIGHIAN**  
**PRIMARY EXAMINER**